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Graeme Alexander

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EXAMINER

LOEWE, ROBERT S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,164	Applicant(s) ALEXANDER ET AL.	
	Examiner ROBERT LOEWE	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-19,21-38,41,42 and 44-48 is/are pending in the application.
- 4a) Of the above claim(s) 34-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-19,21-33,41,42 and 44-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/30/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's amendments and arguments regarding the previously relied upon prior art reference of Landin et al. (US Pat. 6,153,674) have effectively removed this reference as an anticipatory or obviousness-type reference. Specifically, Landin et al. does not teach or suggest that the silicone polymer be employed in the amounts of instant claim 1. Landin et al. teaches that the silicone polymers, which serve as binders in the teachings of Landin et al., are present in amounts of up to 10 wt%, which is much lower than the claimed range of instant claim 1.

Applicants arguments regarding the previously relied upon prior art reference of Mizutani et al. (JP-55078073) has been fully considered and it not found to be persuasive. Specifically, while Applicants have shown in an attached Declaration that the combination of mica and glass additive affords superior heat shrinkage when compared with compositions having mica and glass additive outside the range of the instant claims. While Applicants have shown an improved property when employing specific amounts of mica and glass additive in the attached Declaration, the experiments performed therein (and in the instant specification) are insufficient to overcome the prior art rejections involving Mizutani et al. For one thing, Applicants have not even defined what silicone polymer is employed in the Declaration and specification. Further, the attached Declaration employs peroxide in all examples; such ingredient is not present in any of the claims. Specifically the independent claims recite the limitation "a silicone polymer". It is unclear from the Declaration and Applicants specification which silicone polymer was employed. The limitation 'silicone polymer' is believed to be so overly generic that a showing of a single type of silicone polymer (which is not defined in Applicants working examples and

Declaration) is not commensurate in scope with this limitation. Applicants are encouraged to more specifically define this limitation in the independent claims in order to overcome the prior art of record. More specifically, the limitation silicone polymer includes a multitude of polymer ranging from volatile liquids to gels to hard rubbers; both crosslinked and non-crosslinked systems, silicone resins, silicone-based surfactants, water-soluble silicone polymers, silicone polymers bearing liquid crystalline substituents, silicone copolymers having other repeat units present, i.e., siloxane-urethane copolymers, siloxane-urea copolymers, etc.

Applicants further argue that Mizutani et al. does not teach mica *per se*, but rather mica glass, which Applicants argue is not mica. However, the broadest reasonable interpretation of the limitation mica includes all forms of mica, including any mica-containing substances.

Last, Applicants argue that the combination of Mizutani et al. with Takahashi et al. is improper since they adopt incompatible approaches to fire protection and that Takahashi et al. teaches the addition of glass powder outside the claimed range. In response to Applicant's argument, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-5, 11-15, 19, 21-23, 28-33, 41, 42, 44, 45 and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (JP-55078073). For convenience, a certified English-language translation of this document will be relied upon which was provided in a previous PTO-892 form.

Claims 1 and 19: Mizutani et al. teaches a heat-resistant coating which comprises a silicone resin and devitrified mica glass (claim 1 of Mizutani et al.). Mizutani et al. further teaches the addition of glass frits (claim 4 of Mizutani et al.). Regarding the amounts of these ingredients, Mizutani et al. teaches that the silicone rubber may be present in amounts of from 5-90%, and that the mica may be added in amounts of from 10-95% (bottom of page 9 to top of page 10). Mizutani et al. does teach that it is desirable to add glass frits to the silicone and mica compositions (bottom of page 7). The addition of glass frits are taught by Mizutani et al. to prevent the peeling and occurrence of cracks in the coating films and serves to take part in the ceramafication reaction of the mica and siloxane thereby affording a devitrified ceramic coating film. While Mizutani et al. does not explicitly teach the amount of glass frits to be added, it would have been obvious to a person having ordinary skill in the art at the time of the invention

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to adjust the amount of glass frits present in the compositions in order to achieve proper balance between crack formation and reaction with the silicone and mica as taught by Mizutani et al.

Claims 3-5 and 21-23: Mizutani et al. teaches that the glass frits used should have softening points between 350 and 900 °C, which substantially overlaps with the ranges of instant claims 3-5 and 21-23 (page 8).

Claim 11: Mizutani et al. teaches that zinc octylate (a crosslinking additive) may be present in the fire-resistant composition (middle of page 11).

Claims 12, 14 and 15: Mizutani et al. teaches the addition of phlogopite mica having an average particle diameter of 47 microns, which is sufficiently close to 50 microns that a person having ordinary skill in the art would expect the physical properties to be the same. “A *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected [the claimed product and a product disclosed in the prior art] to have the same properties.” *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

Claims 28-31, 44, 45, 47 and 48: While Mizutani et al. does not explicitly teach the physical property limitations of instant claims 28-31, 44, 45, 47 and 48, Mizutani et al. renders obvious the compositions of instant claims 1 and 19. A chemical composition and its properties are inseparable. Therefore, if the prior art and the instant claims require the same ingredients in the same amounts, then any properties associated with the prior art composition which are claimed would inherently be satisfied unless it can be shown/argued by the Applicants that this would not be the case.

Claim 32: Mizutani et al. teaches coatings on insulating glass cloth (page 13).

Claim 33: Mizutani et al. teaches coatings on iron substrates, therefore Mizutani et al. teaches coatings on an electrical conductor (examples).

Claims 41 and 42: While Mizutani et al. does not explicitly teach that the compositions are extrudable, such compositions need only be capable of being extruded.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (JP-55078073) as applied to claim 1 above, and further in view of Hedrick (Mica, 1997, first published on the web on 8/24/2000).

Mizutani et al. teaches the composition of instant claim 1 as described above. Mizutani et al. does not explicitly teach that the mica which can be employed in the compositions can be muscovite mica. However, a person having ordinary skill in the art recognizes that mica is not a single species but represents a class of minerals. Because of this, a person having ordinary skill in the art would have found it obvious to choose a specific type of mica, and based on the teaching of Hedrick, would have been motivated to choose muscovite mica since it is abundant and has superior electrical properties.

Claims 7, 8, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (JP-55078073) as evidenced by <http://www.glassonweb.com/articles/article/376/>.

Mizutani et al. renders obvious the fire resistant polymer composition of instant claim 1, as described above. Mizutani et al. specifically teaches that borosilicate glass frits may be employed. Borosilicate glass inherently has an alkali metal content of less than 30% as required

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by instant claims 7, 8, 25 and 26 as evidenced by

<http://www.glassonweb.com/articles/article/376/>.

Claims 6, 9, 24, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (JP-55078073) in view of Crompton et al. (US Pat. 4,879,066).

Claims 6 and 24: Mizutani et al. renders obvious the fire resistant polymer composition of instant claim 1, as described above. Mizutani et al. does not explicitly teach that a blend of glass additives which have low and high softening points may be employed. However, Crompton et al. does teach the addition of a blend of glass frits having low and high softening points (1:61-2:10). Mizutani et al. and Crompton are combinable because they are from the same field of endeavor, namely, fire-resistant compositions. At the time of the invention, it would have been obvious to a person having ordinary skill in the art to add a blend of low and high softening glass frits as taught by Crompton into the fire-resistant compositions as taught by Mizutani et al. and would have been motivated to do so since Crompton teaches that the addition of frits of different melting temperatures provide continuous flow of molten frit as temperatures increase providing a fused protective layer (1:61-68).

Claims 9 and 27: Mizutani et al. does not explicitly teach that additional fire retardant additives such as those of instant claims 9 and 27 may be added. However, Crompton teaches the addition of alumina trihydrate (2:16-25). At the time of the invention, a person having ordinary skill in the art would have found it obvious to add alumina trihydrate as taught by Crompton into the compositions as taught by Mizutani et al. and would have been motivated to do so since Crompton teaches that alumina trihydrate releases most of its adsorbed water

between 200 and 330 degree C to dampen burning and reduce smoke emission (2:16-25), which are desirable traits for the compositions taught by Mizutani et al.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (JP-55078073) as evidenced by <http://www.glassonweb.com/articles/article/376/>, as applied to instant claims 1 and 8 above, further in view of Crompton et al. (US Pat. 4,879,066).

Mizutani et al. renders obvious et al. the silicone fire resistant composition of instant claim 1, as described above. Mizutani et al. as evidenced by <http://www.glassonweb.com/articles/article/376/>, renders obvious the composition of instant claim 8, as described above. Mizutani et al. does not explicitly teach that the composition may further comprise inorganic fibers which do not melt at 1000 degrees C. However, Crompton teaches a fire retardant composition which comprises a ceramic fiber (2:11-15). At the time of the invention, it would have been obvious to a person having ordinary skill in the art to add an inorganic fiber/ceramic fiber as taught by Crompton into the fire-resistant compositions as taught by Mizutani et al. and would have been motivated to do so because Crompton teaches that the inclusion of ceramic/inorganic fibers can bind the frits and remains unchanged at temperatures above 1000 degrees C (2:11-15).

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (JP-55078073) as applied to claim 1 above, further in view of Matsumoto et al. (US Pat. 6,174,943).

Mizutani et al. renders obvious the composition of instant claim 1, as described above. Mizutani et al. does not explicitly teach the addition of a silane coupling agent such as those of instant claim 17. However, Matsumoto et al. teaches a flame-retardant composition comprising mica in which the mica is treated with a silane coupling agent (6:58-64). Mizutani et al. and Matsumoto et al. are combinable because they are from the same field of endeavor, namely, flame-retardant compositions. At the time of the invention, a person having ordinary skill in the art would have found it obvious to include a silane coupling agent, such as an epoxysilane coupling agent as taught by Matsumoto et al. into the compositions as taught by Mizutani et al. and would have been motivated to do so because Matsumoto et al. teaches that the addition of a surface treatment agent increases adhesion between mica and the host resin and that an epoxysilane coupling agent in particular is preferred since it does not compromise the physical properties of the composition (6:58-64).

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. (JP-55078073) as applied to claim 43 above, in view of Takahashi et al. (US Pat. 5,061,736; cited on a previous PTO-892 form).

Mizutani et al. renders obvious the limitations of instant claim 43, as described above. Mizutani et al. does not explicitly teach the particle size of the glass additives. However, Takahashi et al. does teach fire-resistant silicone-based compositions comprising glass frit additives wherein the additives have a particle size which satisfies the limitations of instant claim 46 (5:54-6:2 and 13:50-55). Mizutani et al. and Takahashi et al. are combinable because they are from the same field of endeavor, namely, silicone-based fire-retardant compositions. At the time

of the invention, a person having ordinary skill in the art would have found it obvious to keep the particle size of the glass frit additive within the range specified by Takahashi et al. and would have been motivated to do so because Takahashi et al. teaches that the workability of the silicone rubber composition is diminished when the particle size of the frits is too large (5:64-68). The preferred particle size of the frits is from 2 to 20 microns which substantially overlaps the range of instant claim 46.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT LOEWE whose telephone number is (571)270-3298. The examiner can normally be reached on Monday through Friday from 5:30 AM to 3:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. L./
Examiner, Art Unit 1796
1-Jun-09

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796